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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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In the Matter of )  
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Amendment Of Part 95 Of The )  
Commission's Rules To Allow )  
Interactive Video And Data Service )  
Licensees To Provide Mobile )  
Services To Subscribers )

WT DOCKET NO. 95-47

RM-8476

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To: The Commission

**REPLY COMMENTS OF  
DISPATCH INTERACTIVE TELEVISION**

Dispatch Interactive Television ("Dispatch"), by its attorneys, hereby submits its reply to the comments filed with regard to the above-referenced Notice of Proposed Rulemaking (the "Notice"). Dispatch supports the introduction of ancillary mobile services for fixed Interactive Video and Data Service ("IVDS") subscribers, and submits these Reply Comments primarily to underscore its position that the Commission should establish a 20 watt maximum effective radiated power ("ERP") for mobile response transmitter units ("RTUs") and retain the current 20 watt maximum ERP for fixed RTUs operating in IVDS systems.

**INTRODUCTION AND SUMMARY**

The comments filed in this proceeding unanimously support the Commission's proposal to authorize mobile IVDS

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services; mobility is the inevitable next step for the IVDS industry. As for the technical conditions under which IVDS services will operate, the parties commenting on the Notice strongly support retention of the 20 watt ERP maximum for the operation of fixed RTUs. Additionally, the great majority of those commenting on the issue oppose the Commission's proposal to restrict the ERP of mobile IVDS RTUs to 100 milliwatts. In order to realize the numerous potential benefits of both mobile and fixed IVDS services, the Commission should allow fixed and mobile RTUs to operate at a maximum ERP of 20 watts.

**1. The Commission Should Authorize IVDS Licensees To Offer Ancillary Mobile Service To Their Subscribers.**

Dispatch joins all of the other commenters in this proceeding in endorsing the advent of mobile IVDS services, at a minimum on an ancillary basis.<sup>1</sup> Mobility will allow for greater flexibility, promote greater economic and spectrum efficiency, and enable the public to have better and more convenient access to telecommunications services. Under the right conditions, introducing mobility will speed the deployment of IVDS services, enhance the variety of services that can be offered to the

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<sup>1</sup> Several commenters suggested that the Commission should allow subscribers to subscribe only to mobile services without being required to subscribe to fixed services as well. Comments of The National Action Group for IVDS at 6; Comments of Tel/Logic Inc. at 4; Comments of Committee for Effective IVDS Regulation at 4; Comments of Grand Broadcasting Corporation at 3-6; Comments of Henry Mayfield at 2; Comments of Triad TV Data at 5-6; Comments of Licensees at 2; see also Comments of EON at 3-4. Dispatch takes no position on the issue of requiring provision of mobile services as solely ancillary to fixed services.

public, and attract potential investors, subscribers, and new entrants into the business.

**2. The Commission Should Retain The Presently Authorized Maximum Power Of 20 Watts ERP For Fixed IVDS RTUs.**

The commenters wrote overwhelmingly in favor of maintaining the current maximum of 20 watts ERP for fixed IVDS RTUs rather than limiting the power to 100 milliwatts.<sup>2</sup> The Commission should not reduce the maximum ERP of fixed IVDS RTUs at this early stage in the development of the industry, because that power limit would mandate use of one specific type of configuration developed by one vendor. Limiting the power of RTUs to less than 20 watts ERP would greatly restrict technical opportunities for IVDS systems and concomitantly narrow the range of services available to the public. Utilizing a 100 milliwatt ERP microcell system also would make IVDS operations prohibitively expensive. Moreover, each licensee relied upon the regulations in effect at the time of the IVDS license auction, and their research and business plans reflect that reliance. Finally, it is not necessary to adopt a rule that mandates a

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<sup>2</sup> See, e.g., Dispatch Comments at 4; Comments of Active Communications Partners at 1; Comments of Committee for Effective IVDS Regulation at 6-7; Comments of Concepts to Operations at 5-6; Comments of Erwin Aguayo, Jr. at 2-4; Comments of Henry Mayfield at 2; Comments of Interactive Service Designs at 2; Comments of Radio Telecom & Technology at 7; Comments of The Richard L. Vega Group at 2; Comments of Sea, Inc. at 5; Comments of Tel/Logic Inc. at 4; Comments of Triad TV Data at 5; Comments of Two Way TV at 2.

universal decrease in the maximum ERP from 20 watts to protect broadcast operations on Channel 13 from interference.

Several commenters expressed concern that the Commission would adopt a rule that effectively would force IVDS licensees to purchase equipment from a single vendor, EON,<sup>3</sup> by limiting the maximum ERP for RTUs to a level consistent only with the equipment design of that vendor. Such a rule not only would be anticompetitive but also likely would cause considerable unanticipated expenses for many IVDS licensees.<sup>4</sup> Reducing the maximum ERP now would force licensees to invest in an expensive microcellular infrastructure, a start-up investment which may be totally contrary to a given licensee's business plan. See Dispatch Comments at 5-9 and Declaration of Marvin Born, attached as Exhibit 1. The Commission should not lock the entire IVDS industry into the capabilities of one manufacturer, particularly where other vendors may have more advantageous operating systems.<sup>5</sup> Vendors other than EON have proposed RTU systems with

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<sup>3</sup> Comments of Active Communications Partners at 1; Comments of Committee for Effective IVDS Regulation at 6-7; Comments of Concepts to Operations at 5; Comments of Interactive Service Designs at 1-3; Comments of Radio Telecom & Technology at 5-6; Comments of The Richard L. Vega Group at 2; Comments of Tel/Logic Inc. at 4.

<sup>4</sup> Comments of Concepts to Operations at 5-6; Comments of Interactive Service Designs at 2.

<sup>5</sup> See Comments of Committee for Effective IVDS Regulation at 6; Comments of The Richard L. Vega Group at 2; Comments of Tel/Logic Inc. at 4-5.

higher power that may reduce system infrastructure costs because they require single, rather than multiple, receivers.<sup>6</sup>

Commenters noted, too, that they relied on the 20 watt maximum ERP when bidding for their IVDS licenses.<sup>7</sup> Further, licensees have undertaken a great deal of research and development based upon that technical specification. As Interactive Service Designs succinctly stated in its Comments: "Cutting power to 1/200th of the original permissible level will harm companies involved in research with systems using 20 watt ERP."<sup>8</sup>

Not only will reducing the ERP of fixed RTUs to 100 milliwatts harm IVDS licensees, but such a reduction of power also clearly will deprive the public of services from IVDS technologies that require a 20 watt maximum ERP. Technical opportunities for IVDS systems would be greatly inhibited if the power limitation were reduced from a 20 watt maximum ERP on fixed RTUs. Many interactive applications will not be commercially feasible unless licensees can use fewer transmitters with higher power, placed farther apart. Reducing the maximum ERP for fixed RTUs will eliminate some types of competing equipment altogether.

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<sup>6</sup> Comments of Radio Telecom & Technology at 2; Comments of Tel/Logic Inc. at 4.

<sup>7</sup> See, e.g., Dispatch Comments at 7-8; Comments of Concepts to Operations at 5-6; Comments of Interactive Service Designs at 2.

<sup>8</sup> Comments of Interactive Service Designs at 2.

Ultimately, the Commission should not foreclose systems that can provide fixed IVDS service at a maximum of 20 watts ERP.

Finally, there is no technical reason to limit by rule the current maximum ERP for fixed RTUs to 100 milliwatts in order to reduce the chances for possible interference with Channel 13. At a minimum, there is no reason for such a limitation in areas where Channel 13 is not used for broadcast operations. Inside the Grade B contours of stations operating on Channel 13, the FCC's regulations already address concerns about interference, requiring IVDS licensees to do whatever is necessary to eliminate unacceptable interference.<sup>9</sup>

**3. The Commission Should Authorize A Maximum Of 20 Watts ERP For The Operation Of Mobile IVDS RTUs.**

Commenters addressing this issue predominantly argued that the Commission should not restrict mobile IVDS RTUs to a maximum ERP of 100 milliwatts.<sup>10</sup> A limit of 100 milliwatts would

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<sup>9</sup> In areas where there is no operating Channel 13, the 5-second-per-hour duty cycle limitation is clearly unnecessary, because the purpose of the duty cycle limitation is to protect Channel 13 from unacceptable interference. Notice at ¶ 9. The Commission should therefore eliminate the duty cycle limitation as it applies to those areas. While many commenters argue for the total elimination of the duty cycle, in areas where Channel 13 is available, there is insufficient evidence at the present time to support changes in the duty cycle limitation. See Comments of Two Way TV at 2 (licensees need to demonstrate the lack of harmful interference before requesting that the Commission lift the duty cycle restriction).

<sup>10</sup> See, e.g., Dispatch Comments at 10-12; Comments of Active Communications Partners at 1; Comments of Concepts to Operations, (continued...)

deprive the public of new services and the benefits of competition, and would prove quite costly to IVDS licensees. Moreover, current regulations already provide for protection of Channel 13 from unacceptable interference from mobile IVDS units.

The proposed maximum ERP for mobile RTUs of 100 milliwatts would result in fewer IVDS services for consumers, and restrict licensees from developing other uses for IVDS.<sup>11</sup> Such a low ERP maximum would require licensees to use a specific type of microcell technology if they desired to provide ancillary mobile service. Other types of technology would no longer be useful and services based on those technologies would have to be abandoned. The limitation on ERP also could preclude reliable use of hand-held mobile RTUs in certain areas, like underground parking garages or cars,<sup>12</sup> and suburban and rural areas would be unlikely to be serviced because of the commercial unfeasibility of microcell technology in those areas. While Sea, Inc., states that 100 milliwatt mobile operation "can be developed into many useful applications for wireless data communications,"<sup>13</sup> many promising data and other applications necessarily would be

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<sup>10</sup> (...continued)

Inc. at 4-5; Comments of Erwin Aguayo, Jr. at 3; Comments of Henry Mayfield at 3; Comments of Interactive Management Services, LLC at 2; Comments of Interactive Service Designs at 1; Comments of Tel/Logic Inc. at 3-4.

<sup>11</sup> Dispatch Comments at 11-12; Comments of Interactive Service Designs at 1; Comments of Licensees at 5.

<sup>12</sup> Comments of Concepts to Operations at 4.

<sup>13</sup> Comments of Sea, Inc. at 3-4.

eliminated if the Commission limited ERP for mobile RTUs to 100 milliwatts.

Limiting mobile RTUs to a maximum ERP of just 100 milliwatts effectively would force all IVDS licensees to use microcell technology. This requirement would necessitate numerous cell sites, and therefore a large capital outlay and high operating costs, slowing the initial deployment of mobile IVDS systems. See Dispatch Comments at 5-12 and Decl. of Marvin Born.<sup>14</sup>

Finally, ancillary mobile IVDS services will be less likely to cause significant interference to Channel 13 than fixed services because of their movement.<sup>15</sup> In any event, protections in the FCC's rules currently obligate IVDS licensees to eliminate interference where it occurs if the requirements for the use of automatic transmitter power control and the 5-second-per-hour duty cycle do not sufficiently limit unacceptable interference.

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<sup>14</sup> One commenter described a better solution: "Initially, IVDS systems may operate at higher powers to avoid unnecessary construction. As demand grows, the licensee may decide to add CTS sites and reduce the power of RTUs on its system." Comments of the Committee for Effective IVDS Regulation at 6.

<sup>15</sup> Comments of the Committee for Effective IVDS Regulation at 3.

CONCLUSION

For the reasons discussed above, the Commission should authorize the provision of ancillary mobile services to fixed IVDS subscribers. The Commission should, further, establish a 20 watt maximum ERP for mobile RTUs and maintain the 20 watt maximum ERP for fixed RTUs.

Respectfully submitted,

DISPATCH INTERACTIVE TELEVISION

By: Mark D. Schneider  
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Dated: July 11, 1995

DECLARATION OF MARVIN BORN

I, Marvin Born, do hereby declare and state as follows:

I am Vice President of Engineering of the Dispatch Broadcast Group. The Dispatch Broadcast Group, through affiliates, presently operates two television stations: Station WBNS-TV, Channel 10, licensed to Columbus, Ohio, and Station WTHR, Channel 13, licensed to Indianapolis, Indiana. The Dispatch Broadcast Group also is affiliated with Dispatch Interactive Television ("Dispatch"). Through affiliates, Dispatch has purchased at auction IVDS licenses for Indianapolis and Columbus.

I have served in an engineering capacity with the Dispatch Broadcast Group for approximately seven years. I hold the following degrees: a Bachelor of Science in Broadcasting from West Virginia University and a Masters of Business Administration from what is now Texas A&M at Corpus Christi. Prior to my seven years of service with the Dispatch Broadcast Group, I served in a similar engineering capacity with Gulf Coast Broadcasting for approximately twelve years. Over the past twenty years I have gained extensive experience in television broadcast radio frequency technology and the operation of multiple transmission sites.

Dispatch supports the proposal of the Federal Communications Commission (the "FCC" or the "Commission") to authorize the provision of mobile service by IVDS licensees on an ancillary basis. From an engineering standpoint, however, the Commission should retain its rule authorizing a maximum of 20 watts effective radiated power ("ERP") for fixed response transmitter units ("RTUs") and, similarly, should authorize a maximum ERP of 20 watts for mobile RTUs.

#### Fixed IVDS Service.

From a technical perspective, there are several reasons to maintain the 20 watt ERP maximum for fixed RTUs in the IVDS service, and no reason to limit the power.

First, if maximum power for fixed RTUs is limited to 100 milliwatts, the options of Dispatch and other licensees for the construction and development of systems would be extremely limited. IVDS licensees would be required to purchase technology like that developed by EON, which would be prohibitively costly to Dispatch and similarly situated licensees. EON's system requires numerous microcells, and, depending upon the environment involved, EON's microcells operating with a maximum ERP of 100 milliwatts have a range of approximately 2000 feet. Giving adequate consideration to terrain, building location, architectural conditions, and the type of antenna structures

involved, IVDS cell sites under the system proposed by EON would have to be placed at a maximum of 4000 feet apart for the system to be functional.

In contrast, Dispatch's business plan depends upon a technology and system that relies on a greater ERP from each transmitter, using fewer transmitters placed further apart. Radio Telecom and Technology, Inc. ("RTT") has developed such a technology and system, which is compatible with Dispatch's plan. Depending upon the environment, more powerful transmission facilities used by systems like that designed by RTT, relying on a maximum ERP of 20 watts, have a range of 10 miles. This requires fewer cells, and is more compatible with the systems and business plans of Dispatch and the systems of other licensees like Dispatch.

Second, the Commission's main technical concern in authorizing IVDS systems was that the IVDS systems not cause unacceptable interference to other services, specifically television broadcast stations operating on Channel 13. While limiting transmission power is one method of reducing interference, there is absolutely no need to restrict fixed RTU power in the IVDS service to 100 milliwatts ERP because automatic transmission power control is already provided for in the Commission's regulations. Automatic transmission power control incorporated in each RTU ensures that the transmitters will use the lowest possible power necessary to communicate with an IVDS

base station. The Commission, then, already effectively restricts power to reduce interference by the use of "state of the art" technology; IVDS services use only the power they need, which may be 100 milliwatts or up to 20 watts.

As an additional interference safeguard, the Commission currently requires that the maximum duty cycle of RTUs in the IVDS systems not exceed 5 seconds per hour. This limitation does not in practice mean 5 seconds of information will be sent at a time; instead, it is a series of millisecond short data bursts, reducing noticeable interference. With service limited in this manner by the current FCC rules, there is no need to reduce the maximum ERP of fixed RTUs to avoid interference that is not anticipated to be problematic.

Finally, the purpose of the Commission's limit on power is to protect reception on Channel 13. In communities that do not receive television service on Channel 13, there is clearly no reason to reduce the maximum ERP for fixed RTUs from 20 watts because there will be no interference. The Commission clearly does not need to concern itself with IVDS operation outside of the grade B signal contour of stations operating on Channel 13. The FCC's current IVDS rules already contain power restrictions based upon the distance of IVDS transmitters from operating television Channel 13 transmission sites.

In summary, any potential problem with fixed RTU interference to Channel 13 can be solved by using the existing IVDS regulations and not by reducing the maximum permitted ERP for fixed RTUs. The Commission currently requires an IVDS licensee to investigate complaints of interference to local television reception and correct the interference. Given the technical parameters discussed above, limiting the maximum ERP to 100 milliwatts will not significantly add to the mechanisms in place to arrest interference.

#### Mobile IVDS Service.

The Commission should authorize a maximum ERP of 20 watts for mobile RTUs for several technical reasons, similar to the reasons for maintaining 20 watts at the maximum ERP for fixed RTU services. First, if the Commission adopts EON's proposal, all IVDS systems proposing to provide mobile service on an ancillary basis would have no choice but to use the type of technology proposed by EON. Higher-power transmission systems using technology developed by RTT, the only type of system compatible with Dispatch's business plan, will be unable to operate with a maximum ERP of 100 milliwatts. These IVDS systems will not be able to provide effective and efficient ancillary mobile services.

Second, EON's proposal would simply not be technically feasible in some areas. If cells must be placed every 4000 feet,

IVDS licensees will be forced to serve primarily densely populated areas because those will be the only service areas that are cost effective. Less heavily populated areas like suburban and rural areas likely would not be served because placing cells every 4000 feet would be unduly capital intensive and unlikely to generate sufficient revenue to justify the capital investment.

Additionally, a maximum ERP of 100 milliwatts often will be unacceptable to provide service in downtown areas. In downtown settings, with the reduced maximum ERP, tall buildings would require more microcells even closer together for an IVDS system to function. Obstructions from buildings and other architectural problems would require placement of cells every few thousand feet.

Third, as discussed above, the Commission's concern about interference with other systems is already addressed in its current IVDS regulations. Automatic transmission power control, already mandated in the Commission's regulations for fixed IVDS systems, ensures that mobile technology will use the lowest possible power. The maximum duty cycle of 5 seconds per hour similarly is a sufficient mechanism for eliminating unacceptable interference.

Fourth, there is no need to reduce potential interference with Channel 13 reception by mandating a maximum ERP of 100 milliwatts because any interference from mobile units

would necessarily be fleeting. Whether or not the 5 second per hour duty cycle limit applies to mobile services, the movement of mobile RTUs will vary the sites of transmission, reducing even further the remote possibility of any noticeable interference. Other mobile and fixed services recently authorized by the Commission in this area of the spectrum have no such time limit for transmission and less restrictive power limits. For example, Specialized Mobile Radio ("SMR") in the 220 to 222 MHz range is a new industry operating with a less restrictive power limitation, and is only 2 MHz away from where IVDS is on the spectrum. Also, amateur ham radios with fixed point to fixed point operation in the 219 MHz band have a limitation of 50 watts power output and no time restrictions. Above the 220-222 MHz band, amateur ham radios are authorized at 1500 watts peak effective power.

Finally, reducing mobile RTUs in IVDS systems to a maximum ERP of 100 milliwatts would make the systems less flexible in terms of development and use of new processes. While some hand-held mobile RTUs would need only 2 to 5 watts ERP to operate, a regulation limiting power to that low level would foreclose the technical possibility of other innovative processes. For instance, another possible type of ancillary business for mobile IVDS in the future is data transmission of the type currently used by law enforcement agencies and emergency vehicles. A 100 milliwatt maximum ERP will stifle this technology because of the short, 2000 foot range of transmissions.

The foregoing declaration is true to the best of my knowledge, information, and belief.

  
MARVIN BORN